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Educational Note

Financial Risks Inherent in Multi-Employer Pension Plans and Target Benefit Pension Plans

Task Force on MEPP/TBPP Funding

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Members should be familiar with educational notes. Educational notes describe but do not recommend practice in illustrative situations. They do not constitute Standards of Practice and are, therefore, not binding. They are, however, intended to illustrate the application (but not necessarily the only application) of the Standards of Practice, so there should be no conflict between them. They are intended to assist actuaries in applying Standards of Practice in respect of specific matters. Responsibility for the manner of application of Standards of Practice in specific circumstances remains that of the members in the pension practice area.

Memorandum

To: All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries

From: Tyrone G. Faulds, Chair
Practice Council

Stephen Bonnar, Chair
Task Force on MEPP/TBPP Funding

Date: May 10, 2011

Subject: **Educational Note – Financial Risks Inherent in Multi-Employer Pension Plans and Target Benefit Pension Plans**

This note addresses the financial risks inherent in multi-employer pension plans (MEPPs) and target benefit pension plans (TBPPs) and provides actuaries with guidance in addressing these risks. The purpose of this educational note is to fill a gap in the actuarial literature regarding these types of plans in which plan experience can have a direct effect on the benefits to plan participants.

The risks inherent in MEPPs and TBPPs (the reduction in communicated benefits) are typically borne by plan members (through changes in the benefit levels), rather than by the participating employer(s). However, the risks borne by members are spread across the plan's membership, and are not assumed by each member.

In accordance with the Institute's Policy on Due Process for the Approval of Guidance Material other than Standards of Practice, this educational note has been prepared by the Task Force on MEPP/TBPP Funding and has received final approval for distribution by the Practice Council on March 3, 2011.

As outlined in subsection 1220 of the Standards of Practice, "*The actuary should be familiar with relevant Educational Notes and other designated educational material*." That subsection explains further that a "practice which the Educational Notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation." As well, "Educational Notes are intended to illustrate the application (but not necessarily the only application) of the Standards, so there should be no conflict between them."

If you have any questions or comments regarding this educational note, please contact Stephen Bonnar at his CIA Online Directory address, spbonnar@gmail.com.

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1. INTRODUCTION

This educational note addresses the financial risks inherent in multi-employer pension plans (MEPPs) and target benefit pension plans (TBPPs) and provides actuaries with guidance in addressing these risks. The purpose of this educational note is to fill a gap in the actuarial literature regarding these types of plans in which plan experience can have a direct effect on the benefits to plan participants.

Under both MEPPs and TBPPs, contributions are fixed either under collective agreement, the plan document, or other document supporting the plan. While benefit levels and contribution rates are communicated to members and the participating employer(s), emerging plan experience may cause the benefit levels to be adjusted, upward in the case of favourable experience and downward in the case of unfavourable experience. Changes in actuarial assumptions may also necessitate changes in benefit levels or rates.

The risks inherent in MEPPs and TBPPs (the reduction in communicated benefits) are typically borne by plan members (through changes in the benefit levels), not by the participating employer(s). However, the risks borne by members are spread across the plan's membership, and are not assumed by each member. This differs from a typical defined benefit plan, under which the employer bears the risk because funding contributions vary with plan experience and assumptions, though plan provisions may be amended to change plan costs over the long term. This also differs from a typical defined contribution plan, under which the benefits vary with plan experience, but the risk is assumed by each individual member.

MEPPs cover the employees (and former employees) of many employers, usually, but not necessarily, in the same industry. A frequent characteristic of traditional MEPPs is the possibility of the frequent transfer of employees among different participating employers. TBPPs, as envisaged in this educational note, could be provided by a single employer or by many employers. Though most pension benefits acts do not currently permit TBPPs, this educational note envisions that the key characteristics of MEPPs will also apply to TBPPs.

The following sections of this educational note address the financial risks of MEPPs and TBPPs in more detail, as follows,

2. Overview of Design, Governance and Financing of MEPPs and TBPPs,
3. Risks: Definitions and Measurement,
4. Risk Management: Margins, Methods, and
5. Disclosure.

In several places in this educational note there is guidance for stress testing and other types of work. In all of these situations, the practitioner and the board of trustees would weigh the cost of conducting such work against the benefit that would potentially be derived from the work.

2. OVERVIEW OF DESIGN, GOVERNANCE AND FINANCING OF MEPPS AND TBPPS

Traditional Multi-Employer Pension Plans

The plan design and governance structure of a traditional MEPP has several characteristics, including

known cost for participating employers,

reasonable benefit expectations for plan members,

economies of scale,

administrative ease for participating employers,

continued membership if the member changes employers within the same industry, thus full benefit portability,

strengthened connection between the unions and their membership,

competitive advantage to unionized employers competing for workers, and

legislated plan member participation in plan governance because typically at least half of the board of trustees must represent plan members.

Framework for Plan Design

The starting point for the design of a MEPP is usually the level and structure of contributions. For traditional MEPPs, contribution levels are set through the collective bargaining process. (Contribution levels for non-traditional MEPPs are set by the plan's trustees and documented in the plan text.) Ideally for the traditional MEPPs, there is no employer risk beyond the negotiated contribution obligation. There is no requirement for contribution rates and benefit levels to be the same for all participating employers in a single MEPP.

It should be noted that most jurisdictions permit reductions in accrued benefits for traditional MEPPs. Some jurisdictions may permit benefit reductions, but only upon approval of the Superintendent of Pensions. Other jurisdictions do not permit reductions in accrued benefits. Further, not necessarily all MEPPs are permitted to reduce benefits within the same jurisdiction. The remainder of this educational note will not identify the details of which plans may, or may not, be able to reduce benefits. Further, this educational note applies only to plans where reductions in accrued benefits are possible, with or without superintendent approval.

Benefits are often, but not always, independent of the cost characteristics of the plan members who are working for an individual employer. The benefit that is communicated to plan members is a target. That is, the benefit can be adjusted downward (or upward) based on plan experience. Indexation (both pre- and post-retirement) is typically provided on an ad hoc basis. Ancillary benefits (such as subsidies for early retirement, post-retirement death benefits, and disability pensions) are possible and can be structured to meet the characteristics of the industry and the needs of employers and plan members. Pension coverage is continuous, notwithstanding a member's movement among participating employers.

Plan member Pension Adjustments (PAs) are determined in the same manner as any other defined benefit pension plan. If the MEPP meets certain conditions under the Income Tax Act, plan member PAs are determined on a defined contribution basis.

Where the participating employer's financial obligation is limited solely to contributing a fixed rate of contribution, the employer may account for the cost of the plan on a defined contribution basis.

The business failure or other termination of participation of a participating employer will generally have little impact on the plan's sustainability, unless the failed group represents a dominant portion of the plan.

Framework for Plan Governance

The administrator of a MEPP takes the form of a board of trustees, and usually at least half thereof are member representatives. The board owes a fiduciary responsibility to all plan beneficiaries, active members, retirees, inactive members, and surviving spouses. It is expected to have (or to retain) expertise in all appropriate areas including investment, governance, legal, actuarial, recordkeeping, etc. The board of trustees is charged with making its decisions in the best interests of all plan beneficiaries.

Framework for Financing

The target benefit (i.e., the benefit that is communicated to plan members) would be funded to include appropriate margins. Investment decisions represent a balancing of the desire to maximize the actual benefit paid and to minimize the risk that the communicated target will have to be reduced.

Target Benefit Pension Plans

Currently, TBPPs do not exist as a class of pension plan, though there are some isolated examples of plans that resemble TBPPs (e.g., the Québec member-funded plan concept). However, some of the reports of pension legislation reviews suggest the expansion of these designs as an innovative approach to enhance pension coverage. This educational note describes a possible structure for a TBPP, but it is by no means the only approach. The main thought behind this particular example is to enable small and medium-sized employers to provide pension coverage for their workforce on a practical basis.

The plan design and governance structure of the TBPP outlined herein has several characteristics, including

known cost for participating employers,

reasonable benefit expectations for plan members,

economies of scale,

administrative ease for participating employers,

benefit portability (assuming multiple participating employers), and

improved pension coverage, specifically in sectors of the economy that have identified gaps in coverage, such as small and medium-sized employers (SMEs).

Framework for Plan Design

The key element in the design of a TBPP is the establishment of the level of benefits for the given level (and structure) of contributions. The benefit level includes the amount and structure of the lifetime pension (flat benefit, benefit based on earnings, etc.) as well as any ancillary benefits (early retirement, post-retirement death benefits, etc.). Contributions may be structured to be a fixed amount per hour worked or a fixed percentage of earnings. Depending on the structure of the TBPP, different participating employers may contribute at different rates. The extent of any plan member contributions is not relevant to the operation of the plan, except to the extent that the 50 percent rule applies.

The design of the plan could consider limiting the ability of plan members (and their employers) to manipulate the system by receiving more than their a priori expected value. The implications of focusing on the core benefit are

pre-retirement indexation might be by reference to an external index, not actual earnings increases,

actuarial equivalent early and postponed retirement factors could be used,

early retirement bridge benefits may not be appropriate,

disability provisions may be absent,

death benefits could be the actuarial equivalent of the communicated benefit (if received as a lump sum) or of the target benefit (if received as a pension), and

termination benefits that are paid as a lump sum may be based on the communicated minimum benefit, not the target benefit, or they may be based in some manner on the current funded status of the plan.

A consequence of this type of design would be that the main plan risks include investment, inflation, longevity, and expenses (i.e., those risks that are out of the control of both plan members and their employers).

Framework for Plan Governance

It is expected that the plan administrator will be a board of trustees. Good governance would require a selection process that recognizes the need for board members to act solely in the best interest of plan beneficiaries. Additionally, the board's policies would have to manage any conflict that could exist as a result of a board member having a financial interest in the plan.

The board will be expected to have (or to retain) expertise in all appropriate areas including investment, governance, legal, actuarial, recordkeeping, etc. The expertise would be expected to align properly the plan's risk profile with the characteristics communicated to plan members. Depending on the provisions of the trust, the board may seek to obtain input from all plan beneficiaries when considering design and risk issues.

Framework for Financing

The communicated (or nominal) benefit should be funded including appropriate margins (i.e., without advance recognition of risk premia and with appropriate provisions for adverse deviations (PfADs)). On the other hand, the target (or real) benefit should be funded with relatively small margins.

The rationale for a reasonable margin in the funding of the communicated benefit is to minimize the likelihood of it being reduced in the face of adverse plan experience.

The rationale for a small margin in the funding of the real benefit is to minimize the a priori expectation of intergenerational transfers of wealth, where it is expected that experience gains not retained as a margin are primarily allocated to provide the real benefit.

3. RISKS: DEFINITIONS AND MEASUREMENT

This section will go more deeply into the types of risks encountered by MEPPs and TBPPs and will address how these risks may be measured. All of the risks to which MEPPs and TBPs are exposed may have severe consequences, particularly when they result in the need to reduce benefits (whether they are those in payment, already accrued but not in pay, or to be earned in the future). Due to the lack of recourse to the participating employers to fund deficits, these risks are very important to plan fiduciaries. While the risks can be most acute when solvency funding rules apply, they also exist with going-concern funding.

Asset/Liability Mismatch Risk

Asset/liability mismatch risk is the risk that the assets and liabilities move in opposite directions with an adverse effect on the plan's financial position (i.e., assets decrease when liabilities increase), or that they move in the same direction but to significantly different degrees.

The preferred liability measure for MEPPs and TBPPs is the going-concern liability (without margins or PfADs, though they can be used to mitigate the impact of this risk on benefits). Because of the risk allocation, and in many cases the remote chance of plan failure, the solvency or wind-up liability is generally not appropriate for funding MEPPs or TBPPs, though disclosure of the wind-up financial position would be appropriate (even if not legislated).

The benefit to be valued in assessing this risk can be the nominal benefit (e.g., with no inflation protection) or the target benefit (e.g., with targeted levels of inflation protection), depending on the pension expectations. Also, the situation would dictate whether the accrued liability (based on past service only) or the total service liability is more appropriate. For example, when the plan members are in an industry or division of the plan wherein the future new entrant stream is uncertain, it may be appropriate to utilize the entry age normal actuarial cost method, rather than the unit credit method. If membership can be expected to age because of few new entrants, the unit credit normal actuarial cost can be expected to rise relative to the contribution rate, potentially creating a situation where the contribution rate does not even cover the normal actuarial cost.

For purposes of assessing risk, the market value of assets is usually preferred. (Asset smoothing may well be preferred for satisfying minimum funding requirements under pension standards laws.) Even for purposes of assessing risk, minor asset smoothing may be useful to provide for some deferred recognition of investment gains/losses. Different asset classes have varying risk characteristics, such as

- equities may have higher long term return expectations, but have higher short to medium-term fluctuations,
- government or high-quality corporate bonds and debentures generally can be used to match expected liability cash flows and represent lower investment risk portfolios, and
- alternative/illiquid investments or overlay strategies would be assessed based on their individual characteristics.

The risks associated with any asset class may differ between the nominal and target benefits.

Where a plan's liabilities are measured using a "marked to market" approach, interest rate volatility results in liability volatility (and surplus/deficit volatility to the extent that assets are not matched to the liabilities). If interest rate declines occur continually over a period of time, the result will be increasing liabilities (and the associated cost of the benefits). Even where the plan's liabilities are not measured using a "marked to market" approach, general changes in bond yields will tend to affect the actuary's selection of the liability discount rate, though the effect may be gradual and over time.

To the extent that the plan's assets are invested in interest-bearing securities, as yields decline the one-time capital gain on the securities will be offset by the lower ongoing yield. The plan's ongoing ability to earn the required rate of return also diminishes.

Interest rate risk can be measured across two dimensions as

the plan's liability duration provides an approximate measure of the sensitivity of the plan's liabilities to changes in interest rates, and

the duration of the plan's interest-bearing securities provides an approximate measure of the sensitivity of this portion of the plan's assets to changes in interest rates.

This combination of information provides an indication of the extent to which assets and liabilities will respond similarly to changes in interest rates.

While not strictly a mismatch risk, the actuary would also assess the potential for counterparty risk for any overlay or derivative-based investment strategies.

A simple approach for measuring asset/liability mismatch risk is to stress test for adverse changes. For example, a stress test might determine the effect on both assets and liabilities for a 0.50 percent or 1.00 percent parallel decline in bond yields, a 30 percent drop in the market value of equities, a 10 percent rise in the value of the Canadian dollar, or combinations of these events. Frequent stress testing requires frequent determination of liabilities, either by estimation or by a full valuation.

Inflation Risk

The value of a plan's benefits in nominal terms will decline over time, even when inflation is very low. Members of plans without a contractual commitment to inflation protection will seek ad hoc increases over time to offset the effects of inflation, both with respect to accrued benefits for active members, as well as pensions in payment.

Inflation risk can be measured by monitoring annual inflation rates, as well as cumulative inflation during periods between ad hoc increases. For final pay-based plans, risk is reflected in the experience gains/losses that arise from the difference between assumed (or desired rate of ad hoc increase) and actual increases in earnings.

Risk from the Difference between the Contribution Rate and the Cost of Accruals

If the difference between the contribution rate and the normal actuarial cost is small, then the plan has only a limited ability to absorb experience losses. This is because only a small part of the contribution rate is available to fund any required past service contributions. This risk is particularly great for mature plans. If the plan is not yet mature and is using either the Unit Credit (UC) or Projected Unit Credit (PUC) actuarial cost method, an increase in the average age of the membership may result in an increase in the average cost of accruals such that the contribution rate becomes insufficient to fund ongoing accruals.

This risk can be measured by looking at the present value of the portion of future expected contributions that is in excess of the cost of expected future accruals. This represents the maximum experience loss that can be absorbed by the plan. This present value should be determined over the number of years over which the plan desires to be able to achieve full funding on a going-concern basis (typically 10 to 15 years). Expressing this excess present value as a percentage of the liabilities provides an indication of the relative risk of the plan. Expressing the sum of the surplus and the present value of the excess contributions as a percentage of the liabilities provides an indication of the cushion that exists to avoid the risk that the total contribution rate could become insufficient to support the benefits.

Risk of a Decline in Hours Worked

Where a portion of the contribution is used to cover a deficit, a reduction in the hours worked leads to lower contributions to finance that deficit. In addition, a reduction in hours worked, or hours of work available, may influence part of the workforce to retire earlier, leading to an experience loss when subsidized early retirement is offered (see Retirement Risk section below). Also, an increase in retirements, together with increased lump sum termination benefits, can result in (or increase) negative cash flows for mature plans, increasing their liquidity needs and limiting investment alternatives. In industries where hiring and layoff practices are based on seniority, a reduction in employment is likely to result in an increase in the average age of working members and in the normal actuarial cost rate (as determined using either a UC or PUC actuarial cost method). This is a lesser concern in those industries where hiring preferences and layoffs are not based on seniority.

This risk may be measured by performing sensitivity and stress testing analyses. Such analyses can assess the impact on the funded status and the ability of the fixed contribution rate to satisfy statutory funding requirements for a plan. The frequency of this monitoring should increase when hours worked fluctuate by more than a pre-established acceptable range. Increased monitoring may be in the form of annual valuations or the preparation of monthly/quarterly financial projections. Asset/liability studies using variable work hours over the projection period can also provide insights into the plan's ability to absorb these variances. The "acceptable range" would be plan specific, depending on the terms of the plan, the membership demographics, and the nature of the industry.

Mortality/Longevity Risk

This risk manifests itself when the longevity improvements reflected in the liabilities are not sufficient for either or both plan members and their spouses. When liabilities are based on plan-specific mortality, members' longevity may improve more rapidly than the average population, increasing the risk that longevity improvements reflected in the valuation of the liabilities may not be sufficient. For joint and survivor pensions, spouses' longevity may be unrelated to plan members' mortality experience.

This risk can be assessed, when plan size allows, by performing periodic experience studies (e.g., every five years). These experience studies would include analysis and comparison of the trend since the prior study in order to identify any accelerated or decreased trend.

Smaller plans may not have credible experience or sufficient resources to conduct experience studies for themselves. They may be helped by the sharing of observed experience among plans with similar membership profiles or within comparable industries to help assess changes in mortality trend in a timely fashion.

It is important to note that we can only observe current mortality rates and past improvements in mortality. However, another important assumption is the future rate of improvement in mortality, which cannot be observed. It is comprised of two parts: improvements from the date of the mortality table to the date of the valuation and improvements after the date of the valuation.

Retirement Risk

This risk emerges when plan members retire earlier than anticipated with a subsidized early retirement pension. A reduction in hours worked, or hours of work available, may influence part of the workforce to retire earlier, leading to an experience loss when subsidized early retirement

is offered. This risk can be particularly problematic when "retirees" can return to work at the same or a similar trade after receipt of a pension has commenced.

When plan size allows, it is useful to measure this risk by performing periodic experience studies (e.g., every five years). While it is important to make appropriate provision for early retirement on an ongoing basis, it is particularly so to plan for the adverse retirement experience that may occur during times when the particular industry is struggling.

Risk of Intergenerational Transfers

The fundamental principle of intergenerational equity is the benefit principle, that benefits received from the plan would be reasonable based on the relative proportion of contributions made to the plan (i.e., everyone should pay their own way). Intra-generational equity does not adhere to this principle since the relative value that similarly situated members take out of a plan can vary widely depending on plan experience, the individual's personal circumstances, basic plan design terms, etc. The board of trustees would decide the extent to which inequities (expected on an a priori basis) are reasonable, particularly since many factors affecting the plan's finances are completely out of the board's control. For example, is it desirable to have generations of members, who happen to be at a vulnerable age when market conditions deteriorate, bear the full impact on benefits of the financial implications of these results? Is there some downside protection that is part of the implicit contract under this type of program? Similarly, is it desirable for the generation of members present at the time of a large surplus to reap the full reward of such a surplus? These types of questions would be answered by the board of trustees. However, the actuary can provide analysis to assist the board.

In order to measure the risk of intergenerational inequity, current contributions can be split into the portion to fund the normal actuarial cost and the portion to fund any deficits (or reductions to take advantage of any surplus). The greater the amount by which current contributions differ from the normal actuarial cost, the greater is the wealth transfer among past generations, current generations, and future generations. In addition, it would be of value to stakeholders to understand the potential for changes in this relationship due to future experience gains and losses that the plan may experience. Accordingly, the actuary would address and communicate this risk.

Regulatory Risk

Regulatory risk is the risk that legislation and/or regulations may change the funding rules or that the regulator may change a policy, increasing the potential that plan benefits may need to be reduced. An example of this is an increase in the solvency liability (via required PfADs) in those jurisdictions that require solvency liability measures to determine minimum contribution requirements for MEPPs. Regulatory risk can be thought of as being of two types,

> Type I risks, representing legislative changes that might potentially be considered in the future, and
>
> Type II risks, representing legislative changes that are under current active consideration.

For Type I risks, measurement is likely not possible, nor worth the cost, for any particular plan to "brainstorm". For Type II risks, the implication of alternative potential legislative changes can be measured in order to provide information to the trustees for future planning, and potentially for any advocacy/lobbying efforts in which they may choose to engage.

The actuary would advise the trustees of the likelihood and potential effect in respect of benefits earned in jurisdictions where reductions of accrued benefits are limited or not permitted.

Communications Risk

The fundamental objective of communications is a clear and transparent understanding of the plan terms, benefits, obligations, financial position and the specifics of the "pension deal" and how it affects all parties to the program. The risk is that the communications are, in fact, unclear, opaque or misunderstood.

Plans may choose to communicate to members using a variety of media. Member communication for most plans consists of

- plan booklet upon joining the plan,
- annual report on the benefit earned, and the pension plan and fund itself,
- proper explanation of options when exiting the plan or starting to draw down benefits,
- regular ongoing communication about the plan and fund while drawing a pension,
- materials available on a website, and
- a clear indication of the contact for enquiries.

Participating employer communication typically consists of

- a participation agreement with the board of trustees,
- proper explanation of how the plan works and the employers' roles and responsibilities,
- depending on the role of the employer, regular updates on the plan and fund, and
- a clear indication of the contact for enquiries.

This risk can be measured in many ways. At the simplest level, a few quick tests can be conducted. Does a member booklet exist? Is it distributed on a regular basis? Is it up to date? Does the plan have a website? Is it up to date? Do the trustees issue regular newsletters? Are regular employee information sessions held? Digging a little deeper, some additional questions can be asked. Does the member booklet deal with the roles and responsibilities of all stakeholders, including the members? Does it explain the governance structure? Are the plan risks explained fully? Does the booklet explain how future variations in experience will be treated (how will surplus be spent, how will deficits be funded)?

4. RISK MANAGEMENT: MARGINS, METHODS

For many of the risks identified in section 3, the risk may be managed by either appropriate use of margins or the reduction (or elimination) of the asset/liability mismatch. The first part of this section will address these "generic" management approaches. The latter part of this section will address specific management approaches.

Types of Valuations

Before addressing the topics of margins and the asset/liability mismatch, we discuss appropriate methods of measuring the assets and liabilities of MEPPs and TBPPs.

For MEPPs and TBPPs, the most commonly used methods of measuring the liabilities are

- a going-concern basis with PfADs, used to measure the target benefit (i.e., assuming the desired level of inflation protection) so that with margins, the risk of not being able to provide the target benefit is reduced, and

the nominal benefit measured on both a going-concern basis, including PfADs, and on a hypothetical windup basis (though windup may be remote, a hypothetical windup valuation may be appropriate for measuring the risk of not being able to provide even the communicated nominal benefits).

Asset smoothing methods are generally considered acceptable techniques for smoothing contribution rates (or benefit level volatility). Smoothing methods are not appropriate to predict whether a pension fund will outperform or underperform in the future. Accordingly, while the use of an asset smoothing technique may well be preferred for satisfying minimum funding requirements under pension standards, for purposes of assessing risk, it would normally be appropriate to use market value.

Margins

There are a variety of approaches that may be taken to include margins in a valuation, such as

including a margin in one or more of the actuarial assumptions (typically the discount rate),

establishing a non-specific liability, or reserve, and

specifying an acceptable range for the relationship between the contractual contribution rate and the best estimate normal actuarial cost or total actuarial cost.

Care would be taken when setting margins. Setting the margin as a level percentage of the liability will reduce the target level of benefits to be provided and increase the volatility of funding results relative to the size of the benefit and so would be rather naïve. Instead, a variable level of margin (one that increases in good times and reduces in bad times) is appropriate to address risks such as interest rate risk, inflation risk, and demographic risk. For example, through the 1980s, going-concern discount rates typically contained relatively large margins for adverse deviation. As bond yields declined, going-concern discount rates declined, but to a lesser extent, thus implicitly reducing the margin. This may have been appropriate as the size of margin appropriate for adverse investment experience may be less at lower levels of expected future investment returns.

The average size of margin is also important to consider. Detailed analysis of appropriate levels of margin is outside the scope of this note (and is the topic of a separate task force). However, practitioners would note that in a typical plan situation (where asset mix is near 60 percent equities and liabilities are not marked to market), for one year in three, the funded status of a plan that starts the year at roughly 100 percent can be expected to change over the year by 10 percent or more. (More technically, the standard deviation of annual investment returns for typical asset allocations is roughly 10 percent.)

Asset Allocation

Variability of funded status can be reduced by increasing the match between the assets and the liabilities. This can be achieved by

reducing the equity allocation,

increasing the duration of the fixed income assets (given the typical situation where the dollar duration of the plan's liabilities exceeds that of the plan's assets), and

applying other immunization-like tools such as duration matching, cash flow matching and annuitization of retired life liabilities.

Practitioners would recognize that complete matching of assets and liabilities is rarely appropriate. While it may substantially increase the likelihood that a particular benefit is paid, the level of benefit that may be provided on a fully matched basis is likely to be lower than plan members would desire and may jeopardize the continued support for the plan.

Practitioners would also keep in mind that many plans have at least an aspiration (if not a commitment) to provide some degree of inflation protection. Fully matching using fixed income assets (i.e., with nominal bonds) would not be expected to provide meaningful protection against unexpected inflation. Also, while equities provide a greater expected return than fixed income assets, they often do not have good inflation matching characteristics. Asset classes with reasonable inflation matching characteristics often come with other drawbacks:

> Real return bond coupons by their design match inflation extremely well, but their market value can be volatile in the short term, which can limit their suitability. Also, the amount issued is modest and the market lacks the liquidity of nominal bonds. Because of this illiquidity, investments in real return bonds tend to be acquired on a "buy and hold" basis.
>
> Real estate holdings have some inflation matching characteristics, but generally only when the supply and demand are in reasonable balance. Also, real estate is an illiquid asset that may not be appropriate for very mature plans that have negative cash flows (i.e., benefit payments exceed contributions).
>
> Infrastructure has exhibited better inflation matching characteristics than real estate. However, it suffers from the same problem of illiquidity.

The plan's asset allocation would be considered directly in setting the actuarial assumptions for future rates of return.

While there are different methodologies that could be employed, generally the long-term expected return for fixed income investments in the policy would be derived from the current level of the yield curve, with the appropriate adjustments for asset duration and the level of credit or illiquidity risk. The expected future return for equity and alternative/illiquid investments would be based on a balance of historical returns as well as reasonable future return expectations.

Where managing the asset/liability mismatch risk is a key driver, asset allocation may focus on matching of expected plan liability cash flows, leading to high fixed income allocations and lower equity exposures. Actuarial discount rate assumptions in these cases would be strongly influenced by current yield curve levels, along with the appropriate margins to recognize credit or other risks.

Difference between the Contribution Rate and the Cost of Accruals

This risk would first be considered by assessing the degree of asset/liability mismatch and the current level of "margin". The level of margin is the sum of the surplus and the present value of the excess of the expected contributions over the expected normal actuarial cost for a period of time (for example, the period permitted under legislation to eliminate a going-concern unfunded liability).

If the margin is too small for the level of the asset/liability mismatch, the benefits may not continue to be supportable. Risk can, in this instance, be mitigated by means of effective disclosures in the actuarial report.

If the margin is more than sufficient, it suggests that the benefits can be improved (a decision of the board), but the advice that the practitioner provides to the board would include the point at which the margin becomes too small.

The practitioner would be aware, not only of the current level of margin, but also of the expected trend in the margin. For example, the margin would be expected to shrink for an aging covered group where the normal actuarial cost (determined on a UC or PUC basis) will increase over time.

Hours Worked

Stress testing may be undertaken to determine the extent of the risk of a reduction in hours worked. When undertaking such stress testing, it is important not only to reflect a reduction in hours worked, but also to reflect any other experience that is likely to occur due to the reduction in hours worked. Examples of other adverse experience include

- if the reduction in hours is likely to be borne by older members, then there may be associated losses due to additional retirements,
- if the reduction in hours is likely to be borne by younger members, then there may be an associated increase in the unit credit normal cost rate,
- many MEPPs permit the banking of hours such that a reduction in hours worked (leading to a reduction in contributions) may not result in a similar reduction in the hours credited under the plan (at least in the short term), and
- some MEPPs have a relatively low threshold for a full year of credit, in which case reduced hours (and the related reduction in plan contributions) may not result in reduced credits.

Reflecting these additional "side effects" of a reduction in hours worked may lead to very different conclusions than merely reducing the number of expected contributory hours.

Plan Design Issues

While plan design is the responsibility of the board, the actuary would consider the influence of plan design on the financial risks of the plan. For example, the presence of early retirement subsidies exposes the plan to financial risk in the event of an economic downturn, as members elect to retire early in the face of less work. Also, automatic inflation adjustments, such as a final-pay plan design or contractually committed indexing, increase the financial risk of a plan. As a result, MEPPs rarely have such provisions.

Regulatory Risk

Regulatory risk stems from plan members not receiving their benefits. As plans fail, regulatory scrutiny increases. Regulatory risk may be best mitigated by

- following best practice for governance,
- monitoring the evolution of legislation and regulatory policies,
- maintaining a sufficient funding level (i.e., not putting members' benefits at risk), and
- proactively lobbying regulators and educating them on the issues unique to these types of plans.

Communications Risk

Communications risk can be managed by conducting a communications audit, identifying gaps and shortfalls, and developing a plan to address them. The trustees could go further by researching plan members' level of knowledge (survey, focus groups, etc.) to identify gaps and use the results to guide the development of future communications strategies.

While communications risk is the least technical of all of the risks that have been identified, communications risk is likely the most significant one. Stakeholders who fully understand all relevant aspects of the plan in which they are involved would be more prepared to accept outcomes that emerge. If they do not like how benefits will change in certain circumstances, they can advocate for change in advance. The only way a MEPP or TBPP can be successful in the long run is if it is transparent to all parties.

5. DISCLOSURE

Subsection 3260 of the Standards of Practice outlines the disclosure requirements for external user reports. At this point, additional disclosures are not required for target benefit pension plans (including multi-employer pension plans). The actuary is also expected to comply with any legislated disclosure requirements for target benefit pension plans (or multi-employer pension plans).

If the actuary's mandate includes assisting with the development of communication materials for plan members, the actuary would consider the balance between providing technically accurate information (including the related disclosure) with the ability of the average plan member to understand the issue presented. The actuary may deem it more appropriate to simplify the disclosure to enhance the plan member's ability to understand the concepts and results presented.